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AUTHOR Ross, Helen Warren
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ABSTRACT

Observations in an infant day care program in which mothers take part indicated "jealousy" in infants as young as 5 months when they saw their mother or even the assigned caregiver paying attention to another infant. A total of 18 first-born females between 11 and 13 months of age were the subjects in a systematic study of this phenomenon. Infants were videotaped through a one-way mirror under four conditions: baseline, mother-mother interaction, mother-other baby interaction, and mother-baby interaction. Behavior of the experimental infant was coded using a time sampling technique with 43 mutually exclusive events. Intercoder reliability was 92.4. An analysis of variance for repeated measures revealed significant differences. When infants observed their own mother play with another infant of the same age, exploratory and interactive toy behavior decreased. Unexpectedly, proximity-seeking and orienting to mother also decreased. Practical and theoretical implications of the findings are discussed. (Author/RH)

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THE ORIGINS OF JEALOUSY

Helen Warren Ross

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Abstract

In an infant daycare program in which mothers take part, the authors have observed indications of "jealousy" in infants as young as five months when they observed their mother, or even the assigned caregiver, paying attention to another infant. In a systematic study of this phenomenon, subjects were 18 first born females between the ages of 11 and 13 months. The infants were videotaped through a one-way vision mirror under four conditions: baseline, mother-mother interaction, mother-other baby interaction (experimental condition), mother-baby interaction. Behavior of the experimental infant was coded using a time sampling technique with 43 mutually exclusive events. Intercoder reliability was 92.4. An analysis of variance for repeated measures revealed significant differences ($p. < .05$). When infants observed their own mother play with another infant of the same age, exploratory and interactive toy behavior decreased. An unexpected result was that proximity seeking and orienting to mother also decreased. Some practical as well as theoretical implication of these results were discussed.

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Background of This Study

Since the spring of 1973 the School of Family Studies and Consumer Sciences at San Diego State University has maintained a program to train students in infant development and the supervision of infants in group care. Also, in cooperation with the Associated Students at San Diego State University, we began a day care program for infant children of students, staff, and faculty. Child Development students who are enrolled in the class in infancy serve as caregivers for both programs. However, in order to have an adequate number of caregivers for the day care program, parents must be willing to work a specified number of hours. In the infant program run by the Child Development Laboratory, parents are free to come and go as they please and no requirement is made that they must serve as caregivers. The one exception is a student in the infancy class who was permitted to place her own five-month-old child in the program. It was also decided that since she was to serve as a caregiver and learn about the characteristics of infants other than her own that she would not have primary responsibility for her baby. After two weeks it became apparent that if her infant were to remain in the program she would have to be his primary caregiver. Despite this change, after five weeks, although the student continued as a caregiver her infant had to be placed with a babysitter. The problem was simply any time the mother attended to the needs of another infant her baby cried continuously and could not be consoled by other caregivers.

Shortly after this experience I was asked to help the Associated Students set up an infant day care program with parent participation. My students as well as parent were to serve as caregivers. I agreed on the condition that parents be assigned their own infant as a charge and that

students and staff agree that the parent was to meet the needs of his/her infant first. The person who was originally responsible for this program (second author) noted that despite these precautions, infants cried more, played less, and clung to their mothers when their mother was caring for another infant.

Now every developmental psychologist knows about sibling rivalry and the psychoanalysts assert that the Oedipus complex is the source of jealousy. In this instance, however, we are dealing with infants as young as six months. Several current theories might be employed to explain this phenomenon but they were not really adequate to explain the behavior we have observed. The first might be separation anxiety. However, the infant's mother was in close proximity and within sight. Second, we might consider stranger anxiety, but these behaviors persisted after the infant had come to play happily in the new environment with new people when his/her mother was not there. Interestingly enough, although fathers also serve as parent participants, this behavior has not been noted when fathers cared for infants other than their own. Lamb (1976) and Ross et al. (1975) have found that infants are obviously attached to their father but the father does not appear to reduce anxiety to the same extent as the mother, when the infant is presented with new environments or people. Obviously, this behavior could be subsumed under attachment behavior but it is clearly not synonymous with typical attachment behavior. Could these behaviors that we had both observed then be precursors of what is called jealousy in the older child or adult?

Review of Pertinent Literature

Jealousy is generally considered to be an emotion by most

psychologists. According to J.B. Watson, the infant is born with three emotions: fear, rage, and love. Bridges (1932) contends that excitement is the original emotion with which the young infant is born; all other motions are derivatives of this diffuse state. The first division of excitement becomes delight and distress, and jealousy is subsumed as a derivative of distress. In her observation of 62 infants, she describes two infants at 18 months who showed clear signs of jealousy.

According to classical psychoanalytic theory, the Oedipus complex occurs somewhere between four and five years. At this time, the child also identifies with his parents. Psychoanalysis verifies the simple conclusion that boys attach their first genital affection to the maternal adults who have otherwise given comfort to their bodies, and that the child develops his first sexual rivalry, jealousy, against the person who is the sexual owner of those maternal persons. The little girl, in turn, becomes attached to the father and other important men, and jealous of her mother (Erikson, 1956). Jealousy in psychoanalytic terms is the outcome of the Oedipal situation, and according to analysts (other than Melanie Klein) only occurs after the child has well-developed language and motor control. Klein discusses jealousy in connection with envy.

> Envy implies the subject's earliest exclusive relation to one person only and goes back to the earliest relation with the mother (Klein, 1957, pp. 7-8).

In her book, Envy and Gratitude, she elaborates on the effects of envy on the development of the capacity for gratitude and happiness: "Envy leaves the infant feeling deprived of the breast." In her discussion she continues by saying that there is a difference between envy, jealousy and

greed. Envy is the angry feeling, the rage, that another person possesses and enjoys something that is desirable. The envious impulse is directed toward the person who gives what is rightfully ours to another and the impulse is to spoil and harm the loved one. Envy is an emotion which involves a relationship between two persons only. On the other hand, jealousy involves the person who is jealous, the loved one and the usurper of the affection. Jealousy is mainly concerned with love that the subject feels is his due and has been denied him by another. Jealousy involves "emotional robbing," so to speak. Jealousy does not harm the loved one but the rival for affection (Riviere, 1932). Therefore, according to Klein, jealousy may be either ignoble or noble, but envy is always base. The "greeneyed monster" in this interpretation would refer to envy, not to jealousy. Therefore, according to Klein, envy diminishes the person's capacity for happiness or generativity. Jealousy is inherent in the Oedipal situation and these feelings emerge during the fourth quarter of the first year (Klein, 1957). Furthermore, according to Jones, jealousy is central to Freud's image of man. Wale and Davis (1956) maintain that the syndrome of the Oedipal complex is fundamentally based in the biological nature of man and is universal.

Both sibling rivalry and the Oedipal constellation and <u>therefore jealousy</u> are a direct expression of the biological helplessness of the human infant. It is the expression of the possessiveness which the little child feels for his main source of pleasure.

Culture simply alters the expression of this basic constellation and its attendant emotions . . . one of which certainly is jealousy. From an anthropologist's point of view, Mead (1977) states that jealousy is an undesirable characteristic which is dependent upon cultural conditioning.

Thus far, with the exception of Klein and Mead the usual assumption is that jealousy emerges during the third, fourth, or fifth year of life and is universal to mankind.

Vollmer (1977) concurs with the Kleinian position inasmuch as he suggests that since the infant is dependent on his mother and since she remains irreplaceable, while he can be replaced by others, thus, emotional conflict occurs. Beginning in the second year of life this conflict arises which is manifested by jealousy. It is a normal response to actual supposed or threatened loss of love. It is the infant's sense of reality which is lacking since he demands exclusive and unlimited possession of the beloved person.

Watson maintained that all emotions other than love, fear, and rage were learned. Bridges did not include jealousy as an observed emotion in the infant younger than 18 months and the psychoanalysts aver that jealousy is an outgrowth of the Oedipal complex which classically occurs after infancy. Even those who do talk about jealousy earlier than three, suggest that it emerges during the second year of life. Despite the amount of theoretical discussion that can be found in the literature concerning jealousy, and despite the number of studies on attachment behavior there is not one study which addresses itself to the behavior we have observed (and I'm sure mothers have too) and which we label jealousy.

In everyday parlance, jealousy may be destructive, and envy is often used to connote admiration. One might envy another's sense of humor and as such is a form of admiration. On the other hand, one may be jealous of his child's affection for his teacher or her husband's affection for his secretary. This is clearly an example of jealousy since it implies a rivalry for affection. In Klein's view, jealousy is inherent in the

Oedipal situation and may be accompanied by hate or death wishes toward the rival.

Jealousy leads one to feel literally deprived of love, and rejected. The affection or care which I consider to be my sole possession is being withheld and given to someone else. Jealousy and envy are linked, to be sure, but for purposes of this paper I will concern myself only with jealousy. I suggest that the emotion of jealousy is based on the initial experience of attachment, the attachment between mother and infant and is related to the concatenation between mother and infant's mutual affiliation. It must be a function of the attachment of the infant or his mother, since without giving and receiving of love, there is no basis for the emotion of jealousy.

In a recent review of socioemotional development of the infant, Sroufe (1979) contends that attachment lies at the intersection of the cognitive, social and affective domains and it is a key construct in the organization of the infant's emotional development. The infant is not born attached and under pejorative circumstances may not become attached. Attachment between mother and infant depends on experience which involves mother-infant contingent behaviors and development of neurosensory systems which include functions such as memory and discrimination. We know from the extensive work of Ainsworth (1970) and Scarr and Salaptek (1970) that in the second half of the first year the infant is sufficiently differentiated from his mother and his environment to demonstrate fear when he is separated from his mother, or when his environment and/or persons in his environment are new and unfamiliar. This finding appears to be universal and has been documented by numerous researchers over the last 20 years. First, apprehension of discrepant events in the second half of the first year has

been described in many studies by independent observers (Bronson, 1972; Morgan and Ricciuti, 1969, 1966; Stevens, 1971; Spitz, 1950; Tennes and Lampl, 1969). Second, distress occurs when separated from the "mothering person" or the person with whom the infant has formed a primary attachment. This distress has been documented for infants from 8-14 months in the United States raised at home or in infant day care (Kearsley, Zelazo, Kagan and Hartman, 1975), for Israeli infants living in a children's house (Fox, 1977), for Indian children living in Guatemala (Lester et al., 1974) and for Bushman infants living with groups in the Kalahari. Therefore these behaviors which are considered indicative of the filiative system appear to be universal and apparently not a function of specific socialization during infancy. These responses also indicate to us that the infant has sufficient skills to store knowledge and discriminate between stimuli. Sroufe (1979) concludes that attachment is central to the study of the infant's emotional development. "Not only can affective development and expression be organized with respect to consequences for the formation and functioning of attachment, the affective bond itself has consequences for social/emotional and cognitive development as well. Moreover, the adaptation represented by the attachment relationship has important consequences for later adaptation." The infant is said to be attached when he exhibits distress in the face of separation from his mother. However, when an infant expresses distress in the presence of his mother when she turns her attention to another infant does this not also reflect attachment?

Another behavior which may be observed in older children and reflects a tie to the mother is often termed jealousy. This behavior is usually employed when the child reacts to the birth of a sibling. Jealousy is

not a common term when one describes the emotions of infants and in fact in Sroufe's review it is not mentioned despite the fact that he discusses emotional development through the second year of life. However, if jealousy occurs when one perceives a rival for the ministrations from the loved object, or the mothering person, then clearly it is concomitant with the infant's attachment for his mother and can logically be considered possible at any time after the infant has become separated from and attached to his mother.

In our program at San Diego State University we find by the end of the semester that babies eight or nine months old often fuss or make demands on their assigned caregiver if she leaves them to care for another infant. We did not expect to find this behavior in infants so young; as we continued to observe in the infant care program we became more and more convinced that one expression of the infant's filiative behavior was his demand for exclusive attention from his mother. Therefore we tried to see if this behavior might be evaluated under controlled conditions.

Method. In a pilot study of 12 infants, several alterations in the original design were made. Finally after the pilot work was completed we recruited 20 mobile, able to crawl or walk, 8-12-month-old, firstborn infants. The subjects were recruited through word of mouth and with an advertisement in a local newspaper. All subjects were middle-class caucasians. Mothers were reimbursed for parking expenses but there were no paid participants.

In an initial interview with the mother, questions were asked concerning separation problems, caregivers other than the immediate family and outside of the home care. All infants were excluded who spent more than ten hours a week in the care of others on a regular basis.

Also during this period and prior to the experimental procedure the mother and infant were settled and the purpose of the study was explained. She was given instructions and a knock on the one-way vision mirror was used as a signal for her to change the condition. All mothers signed a standard form giving permission for her infant to serve as a subject. The mother was assured that if at any time during the procedure she wished to terminate her participation, she was free to do so. No subjects withdrew from the study voluntarily; however in the final analysis two subjects were excluded. One mother actively played with her baby and another "coached" her infant during the experimental condition. After each session, the mother and her infant were invited to view the videotape. The entire session with introductions, explanations, etc., took approximately three-quarters of an hour.

Apparatus. Each baby was observed in a room specifically designed for infant observation in the San Diego State University Developmental Psychology Laboratory.* The room is approximately 12 ft. by 12 ft. with a one-way vision mirror and a small aperture for the use of videotape. A microphone connected to the videotape was hung inconspicuously from the middle of the ceiling of the room in order to record conversation, infant vocalizations and film behavior simultaneously. The room was arranged with two chairs equidistant from each other as well as from the spot where the subject infant was placed (see below). The arrangement formed an equilateral triangle.

*The authors wish to thank Dr. Larry Fenson for making this facility available for the study.

The constant baby is either on S's mother's lap or on his mother's.

Procedure There were 18 infants included in the study and each infant served as his own control. Two infants, both male, served as the constant baby throughout the study. They were both five months old and not yet crawling. The subjects were observed under four separate conditions which lasted three minutes each. These included a baseline condition with the infant placed in the middle of a standard set of toys with his mother in a chair at the side of the room. Condition I, the mother returned her baby to his original spot had he crawled away and the constant baby and his mother entered the room and sat in the remaining chair. The subject's mother then crossed the room and engaged the mother of the constant baby in conversation as well as making physical contact (patting) but paid no heed to the other baby. In Condition II the subject was again returned to his spot at the apex of the triangle and his mother approached the constant baby and engaged him in play. In Condition III the mother of the stable baby plays and talks with her own infant. In order to control for order

effects, after baseline, Conditions I, II, and III were presented in a counterbalanced design.

The original behavior code (see Chart 1) included 49 distinct behaviors developed from the observation of the films of the pilot group as well as observations from infant care. Since a number of these items occurred too infrequently for statistical analysis, they were excluded from the final analysis. However, they were still included in the evaluation of interobserver reliability. Three observers who had been trained to a criterion of 80 percent agreement with the use of the films from the pilot study scored the videotapes. A sample of 12 observations per condition was made. During the study interobserver reliability ranged from .62 - .98. In order not to inflate the percentage of agreement, only those instances when a judgment was actually made were included in the calculation of agree/disagree.

Chart 1

INTERACTION WITH TOYS

looks at toy(s)
manipulates toy(s)
explores toy(s)
plays with doll
mouths toy(s)
reaches for toy(s)
carries toy(s)
holds toy(s)
ceases playing with toy(s)
offers toy to mother
offers doll to mother
offers toy to other mother
offers doll to other mother
offers toy to other baby
offers doll to other baby
takes other baby's toy(s) or bottle

BODY POSITION

facing mother
back to mother
turns toward mother
turns away from mother

PROXIMITY-SEEKING

approaches mother (moves toward her)
other baby
other mother
enters circle #1
enters circle #2
enters circle #3
body contact with mother
with other mother
touches other baby: gently (pats)
touches other baby: roughly (hits)
tries to climb in chair with mother

EXPRESSIONS

looks at mother
at other mother
at other baby
frowns at mother
at other mother
at other baby
smiles at mother
at other mother
at other baby
baby responds to mother's vocalizations to him/her by smiling, frowning
baby responds to mother's vocalizations to other mother by smiling, frowning

VOCALIZATIONS

protests vocally (whines-cries-fusses)
vocalizes - makes sounds
baby responds to mother's vocalizations to him/her by vocalizing
baby responds to mother's vocalizations to other baby by vocalizing
baby responds to mother's vocalizations to other mother by vocalizing
moves out of camera range

Results Since our working hypothesis was that the infant's behavior would differ from baseline as a function of the three conditions, the subject's score was calculated by subtracting his sum score (frequency of any behavior) in each condition from baseline scores. Since it was expected that certain behaviors would increase while others would decrease from the original baseline condition, a difference score without regard to sign was used. A 3 x 18 Analysis of Variance for repeated measures revealed no reliable differences. Therefore items which occurred infrequently were excluded and behaviors were grouped together on the basis of commonality. On the basis of these combinations four separate analyses were made (3 x 18 ANOVA for repeated measures). The first group was labeled Exploratory Toy Behavior and included such items as looks at, explores, mouths and plays with toys. A second group of behaviors was referred to as Interactive Toy Behavior and included items reached, carries, holds, and manipulates. (The difference between manipulate and explore was that in the definition the baby had to be looking at and manipulating the toy if it were to be considered exploratory.) The difference in these definitions is that the latter appeared to be more passive and the infant might not be actively engaged with the toy and might well be attending to his environment. A category, Orienting Behavior, included facing, turning toward and looking at mother as well as proximity-seeking behaviors. A final category was included. These two behaviors were not sufficiently frequent for separate analysis but were of theoretical interest and the effects were in the same direction. Therefore nonorienting and vocalization were combined.

Table 1

	Baseline		Condition I		Condition II		Condition III	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Explore	17.4	5.4	15.4	2.8	11.3	6.2	14.8	6.0*
Inter	13.6	5.7	10.8	4.9	8. 7	4.8	11.9	5.3*
Orient	10.1	4.8	10.6	4.6	16.2	6.0	6.8	4.9**
Nonorient	8.8	4.4	6.2	4.5	5.2	4.3	6.0	3.5*

* p = .05

** p = .001

Discussion

Recently a great deal of attention has been given to the cognitive development of the infant and there have been few studies which are devoted to the development of affect. One must admit that this is an arbitrary distinction since it is not possible to discuss affect without cognition or vice versa. However, the central theme of this paper deals with affect, albeit necessary cognitive development is necessary for the infant to express affect in a fashion which can be interpreted. Sroufe remarks that affective development has not been central to many investigations of the developing infant.

In the past the numerous publications of Ainsworth, Bowlby and Schaffe have been devoted toward filiative behavior. Bridges' (1932) study of the ontogenesis of emotions set the standard for the observation of emotional development. She clearly suggested that specific emotions evolve out of earlier, undifferentiated distress or nondistress states. According to her observations, jealousy occurs at 18 months. The only other author to discuss jealousy as an infant emotion is Klein who states that it occurs during the Oedipal stage, which according to her is approximately 18 months. Therefore using Klein's definition, we do think we have evidence to support the hypothesis that the infant does react in a manner which suggests this affect earlier than 18 months. Furthermore, it may well be stressful for him. In the analysis of total behavior, we did not find significant differences and did not observe in either our pilot group or our study group the extreme behavior seen in group care, and that we expected to see under more rigorous conditions. Thus we included in our checklist items of distress behavior which did not occur. However, we find some interesting differences when we look at specific behaviors separately.

The largest differences were between Baseline and Condition II, the condition designed elicit "jealous" responses, the condition when the subject's mother actively engages the other baby in play. Orienting to his own mother increases as one would expect, but is least frequent during the condition when the stable mother is playing with her own baby. The reliable difference in this instance is not between baseline and the experimental condition but is between the experimental condition and Condition III. Evidently the baby orients more to his mother when she is doing something discrepant, that is, playing with another baby. The other differences suggest that for the infant it is stressful for his own mother to attend to another infant but not necessarily to another adult. We assume that an indication of stress is reflected difference in his behavior across conditions. The reliable difference occurs when the infant is alone with his mother (Baseline) exploring and holding toys. He pays more attention to his mother and his play behavior decreases when she engages another infant in play (Condition II) but <u>not</u> when she attends to another adult (Condition I). This suggests not only an attitude of the desire for an exclusive relationship, but a <u>special type of exclusivity</u>. The baby's behavior does not change when his mother attends to another adult, "not like me." However, should the attention be directed to another infant, the change occurs. The baby watches and discontinues his activity, play with toys. Thus we may have indications of not only an affect akin to jealousy, but the nascent beginnings of a self-concept. Further, the baby looks and attends least to his mother when the other mother-infant pair are engaged in play. The direction of this effect was not predicted. It may be that since these infants were firstborn they had had little experience with other than members of their own families. This condition may have provided them with a novel situation; thus they turned their attention to the novel

experience rather than the familiar, or perhaps "empathy" also develops during the sensorimotor period.

Although our data are limited, there is a concomitant decrease in vocal behavior during Condition II. Our experience, and that of others (Rheingold et al., 1969) has been that vocalizations are particularly vulnerable to stressful environments or strange situations.

In terms of our original hypothesis, under Condition II, the experimental condition, we saw the infant make no active demands on his mother; however, the decrease in exploratory play and interactive play is indicative of stress. The baby can no longer attend to an activity that had previously engaged him and his behavior is subdued. Similar findings have been found during mother absence (Sroufe, 1979) or when the mother is present but unavailable (Emde, 1980). In our sample only one approach was made to the other baby when one subject reached for his bottle. It is apparent that the mother's ministrations to the other baby elicit different responses from her own infant than do similar contacts with the adult. Is this then a response to a "rival" or perhaps the mother's behavior to the infant is morphologically similar to her behavior toward her own infant and thus more easily recognized by her infant? He may react as though something has been taken away that is exclusively his.

Since this study was developed on the basis of a practical problem, rather than an examination of a specific theory of infant development, it became apparent that this distillation of an observation into an experimental paradigm with all the controls employed in order to account for sources of error and reduce "noise" provided a rather sterile nondynamic view of the infant's behavior. In the process we may well have

lost the very behaviors we wished to study. With a select population (firstborn males) and standard procedures we managed to uncover minimal behavior differences which suggest that the infants were stressed when their mother played with another infant. However the resultant behavior was far different from the behavior we had observed in group care. In this milieu we observed striking distress on the part of the infant when his mother interacted with another infant. In this instance the mother was often involved with feeding or cuddling infant in distress. In addition an added stress for the infant in group care, which may render him less effective in coping strategies, is likely to be the sheer number of strangers, adults and babies. Therefore what may have been perceived as "novel" for infants in our study group is overwhelming for the infant in group care. A caveat is that when one is interested in phenomenon "in situ," in order to assess satisfactorily the effects of such phenomena one may have to develop strategies which adequately appraise the multiplicity of parameters, yet can still yield data which can be analyzed in a meaningful fashion.

Finally, we think from our informal observations and the results of this study that we would urge that an infant not be forced to share his mother's care with others of his age for extended periods of time. Of course this is impossible in instances of multiple births. It would be of interest to see how twins or triplets handled the sharing of mother care.

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